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'reified the void,' well, from the point of view of the student of the history of philosophy such a way of assailing Hegel is in its accuracy similar to a way of assailing Luther's theological views which should hold the reformer up to scorn as a defender of the wicked doctrine of 'justification by works,' and as a blasphemous opponent of 'justification by faith.' One might want to condemn Luther's views; but it would hardly be accurate to talk of 'Luther and the other Papists.' And even so, one is welcome to regard Hegel as a mischievous thinker; but one must not give as a reason that one classes him with those other believers in 'an occult, unknown and unknowable substrate.'

As a fact, by no means all, but certainly a number of Major Powell's own assertions in this valuable paper are theses which every student of Hegel knows to be defended with great energy by the latter thinker. Major Powell well says: "What is the meaning of the word *this*? It may be applied to any constituent of matter, to matter itself, to any body or to any property, and to any idea in the mental world, and its meaning is derived from the context; it has no definite meaning in itself." This is a part of the thesis of Hegel's famous opening chapter of the 'Phänomenologie des Geistes.' And of this thesis in the sequel Hegel makes a use closely analogous to Major Powell's. That to make essence an abstract 'property' of 'the substrate of matter,' is to make essence a 'nonentity of a nonentity' is a thesis so repeatedly maintained by Hegel, in his 'Phänomenologie' (in the third chapter on 'Kraft und Verstand'), in his larger Logic in the second volume, where this 'Bewegung von Nichts durch Nichts zu Nichts' is elaborately discussed, and elsewhere, that Major Powell's failure to recognize the relation of Hegel to this thesis can only be due to a failure to study the habits of Hegel, as our anthropologist would prefer to study those of Chuar, namely, in the 'native wilds' of the thinker himself. The Hegel of whom Major Powell speaks is a product of somebody's 'inner consciousness' and, whoever may be responsible for the dream, all the 'eloquence of the dreamer' cannot make this Hegel an historical person.

Of course, one must beg pardon for laying so

much stress upon the mere accidental fact of history in a case like this. Major Powell's general philosophical construction in this paper seems to the present writer despite some minor doubts, essentially sound, and admirably stated. But, as Major Powell himself obviously holds, the history of philosophy is, at least in one aspect, an anthropological study. It is undesirable that even a minor error should, through a chance misstatement, stand upon record as receiving the support of so eminent an anthropological authority as Major Powell.

JOSIAH ROYCE.

CAMBRIDGE, MASS., February 22, 1896.

PROF. C. LLOYD MORGAN ON INSTINCT.

EDITOR SCIENCE: In an account of a discussion on instinct given in SCIENCE of February 14th, Prof. Morgan is reported thus: "He described his own interesting experiments with chicks and ducklings, and held that these and other evidence tend to show that instincts are not perfected under the guidance of intelligence and then inherited. A chick will peck instinctively at food, but must be *taught to drink*. [Italics mine.] Chicks have learned to drink for countless generations, but the acquired action has not become instinctive."

In one of a series of papers now in the press on 'The Psychic Development of Young Animals and its Physical Correlation,' I have given in detail an account of a study of the pigeon and the chick. It so happens that this very question of drinking by chicks has been especially noted, and I find a record of one observation to the effect that a newly hatched chick pecking at the drops on rim of a vessel containing water accidentally got its beak into the liquid, whereupon it at once raised its head and drank perfectly well in the usual fashion for fowls. Was this by teaching or by instinct?

Later the chicks seem to peck and drink, sometimes on seeing the mother do so. The act seems to be in such a case a sort of imitation so far as its inception is concerned. But will any one contend that that first act of drinking referred to above was other than instinctive? Again, when a chick first drinks on its beak being put into water, can the act be considered as the result of teaching? Is the

chick so intelligent as to carry out an act so complex in such a perfect way as it does on the very first occasion as the result of 'teaching?' Surely no one will deny that sucking is an instinctive act, yet a newly born mammal sucks only when its lips come *in contact* with the teat. Is not the case very similar with the chick? The only difference is that the chick is slower to *recognize* water than food, but as soon as the beak touches water it drinks and there is no teaching about it. Considering how seldom a fowl drinks, yet pecks all day long at particles of food, it is not surprising that the chick is slower to recognize water (drink) than food. But it is one thing to say that a chick learns to recognize drink and another to affirm that it learns to drink. The process of drinking is quite as perfect as that of eating from the very first, if not more so, for a chick at first often misses what it pecks at and fails to convey the object into its mouth in other cases, though it may touch it.

The view that instincts are perfect from the first and undergo no development from experience, I believe, after much observation, to be as erroneous as it is ancient.

Instinct is never, perhaps, perfect at first, and so far as I can see, could not be owing to general imperfect development in the animal of motor power, the senses, etc. A young puppy will suck anything almost that can pass between his lips, as a chick will peck at any light spot or object if small, be it food or not. My own records abound in observations that amply prove the position taken, and while my experiments and observations on birds are in the main in accord with those of Prof. Morgan so far as I know them, I cannot but believe, if I have correctly understood his views as reported at the New York meeting, that he has misconceived or overstated the case under consideration.

The subject of heredity is too large to enter upon now. I may say, however, that my researches in comparative psychology and especially in that part bearing perhaps most closely on the question, psychogenesis, do not incline me to believe any the more in that biological *ignis fatuus*—Weismannism.

WESLEY MILLS.

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[Professor Morgan's observations agree with those of Professor Mills and others. A chick swallows water instinctively, but must be taught to drink by example or by accident. The chick might die of thirst in the presence of water, as the sight of the water does not call up the movements of pecking at it, as do food and other small objects. The mother hen replaces natural selection, and the action, though continually practiced by the individual, has not become instinctive, because it has not a selective value. Professor Morgan's argument seems to be satisfactory. If actions which occur but once in the lifetime of the individual (*e. g.*, the nuptial flight of the queen bee) are thoroughly instinctive, and others which are practiced continually by the individual do not become instinctive in the race, we can scarcely regard instincts as hereditary habits, but must rather attribute them to variations, fortuitous or due to unknown causes, and preserved by natural selection.—THE WRITER OF THE NOTE.]

THE CHANCE OF OBSERVING THE TOTAL SOLAR ECLIPSE IN NORWAY.

EDITOR OF SCIENCE: As unusual facilities are being offered to visit northern Norway to observe the total solar eclipse on the 9th of next August, of which many American and English astronomers and tourists will doubtless take advantage, it seems desirable to make known the following data relating to the cloudiness, and the consequent probability of seeing the eclipse there. They have been communicated to me by Prof. H. Mohn, director of the Norwegian Meteorological Institute, who prepared them for the Swedish Astronomical Association.

Vadsö, which has been recommended as the most accessible station near the central line of totality and will be the rendezvous of several parties, is situated in Latitude 69° 52' North and Longitude 29° 45' East of Greenwich. According to the British Nautical Almanac, the total phase, lasting 1m 47s, here occurs at 15h 58m Greenwich time, or 5h 55m local mean time, which is 2 hours after sunrise. The sun's altitude is 15°.

Professor Mohn writes: For Sydvaranger, the nearest place to Vadsö at which meteorological observations have been made, the amount